

ADMISION MANAGEMENT SYSTEM FOR SCHOOLS

(A CASE STUDY OF: KWORUS SECONDARY SCHOOL)

By

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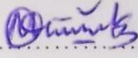
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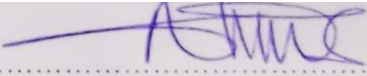
DECLARATION

I CHELANGAT MESHAK Reg.No. BU/UP/2021/1561 Declare that the work presented in this research report is mine and has never been submitted to any university or higher institution of learning for any award.

Date: 09/01/2024 Signature: 

APPROVAL

This project report was done under my supervision by the said student.

Date: 09.09.2024 Signature: 

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DEDICATION

I CHELANGAT MESHAK dedicate my project to my parents and guardians for their financial and moral support they rendered to me that made me excel up to this level. Also, to the entire Busitema University and department of computer studies through their guidance and support that natured me to become a responsible person in this struggle of making the future bight.

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whom the completion of this

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ABBREVIATIONS

RAD. Rapid Application Development

DEC. December

OAS. Office Automation System

TPS. Transaction Processing System

MIS. Management Information System

ESS. Executive Support System

RDMS. Relational Database Management System

HTML. Hypertext Markup Language

MOES. Ministry of Education and Sports

ERD. Entity Relationship Diagram

DFD. Data Flow Diagram

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ABSTRACT

Admission management system is a software tool that helps streamline the process of accepting and managing student admissions rather than relying on traditional paperwork and face-to-face interactions to manage admissions, which often resulted in delays, errors, and a cumbersome process for both students, parents and school administrators. The study was conducted at Kworus secondary school and resultantly came up with admission management system for schools that aids management of student's admissions and related issues.

These systems typically include features such as online application forms, document uploads, fee payment gateways, school events, and communication channels between students, parents, and school staff.

The study employed qualitative methods of data collection for example, observation, document review and focus groups. Qualitative analysis is the use of non-quantifiable methods to evaluate investment or business opportunities and make decisions. In qualitative analysis, the data collected is structured in a proper sequence, basing on the method of collection. After collecting data System design methods like includes structured analysis. which involves breaking down a complex system into smaller components and analyzing their functions interactions, and data flows. Whereby I used rapid application development method (RAD) that focuses on developing the system rapidly through frequent iteration and continuous feedback and I came out with the prototype of the system.

The successful implementation of the admission management system in schools will facilitate seamless communication between the school and applicants, allowing them to address any queries or concerns promptly. It also helps schools maintain a database of student information, making it easier to generate reports, track enrollment numbers, and analyze admission trends.(Kosgei and Munyua 2022)

Continuous evaluation and improvement of the system to adapt changing needs, training and support for School staff to ensure effective usage and recommend This work to be used as a literature to further the study of the area.

CHAPTER ONE:

INTRODUCTION

1.1 Background of the study

The admission management system in secondary schools is an essential tool that helps streamline the process of accepting and managing student admissions. (Avery, Castleman et al. 2021) The admission management system in secondary schools can be traced back to the increasing need for efficient and organized admission procedures. In the past, schools had to rely on traditional paperwork and face-to-face interactions to manage admissions, which often resulted in delays, errors, and a cumbersome process for both students, parents and school administrators.

With the advancement of technology, schools have adopted admission management systems to automate and simplify the entire process. These systems typically include features such as online application forms, document uploads, fee payment gateways, school events, and communication channels between students, parents, and school staff.(Cui, Ma et al. 2023)

The admission management system allows schools to effectively manage the influx of applications, track the status of each application, and ensure that all necessary documents are submitted. It also provides real-time updates to applicants regarding the progress of their application, such as acceptance or rejection.

The successful implementation of the admission management system in schools will facilitate seamless communication between the school and applicants, allowing them to address any queries or concerns promptly. It also helps schools maintain a database of student information, making it easier to generate reports, track enrollment numbers, and analyze admission trends.(Kosgei and Munyua 2022)

1.2 Problem Statement

The current admission process at schools involves handling a large volume of applications from prospective students, parents, and other stakeholders. The traditional way of handling of these inquiries is hectic and leads to delays, inefficiencies, and potential human errors. Schools receives a substantial number of admission-related queries through various communication channels such as emails, phone calls, and social media. The existing admission staff may struggle to manage the sheer volume of applications effectively, leading to delayed responses and dissatisfied applicants. The schools lack a mechanism to handle applicants' information during nonworking hours, causing potential applicants to seek admission information from other sources.(Carranza, Garlick et al. 2022)

Traditional way of handling the admission processes has also resulted in inconsistent responses to similar queries, leading to confusion and loss of credibility. Moreover, human errors in conveying the incorrect admission information could lead to misinformation and dissatisfaction among prospective students.

To address these challenges, the project aims to develop an admission management system for schools. The proposed system will leverage all techniques to provide prompt, accurate, and consistent responses to admission-related processes. The system will be accessible through various platforms, to ensure 24/7 availability

1.3 Main Objective

The main objective of the study is to develop an admission management system for school

1.3.1 Specific Objectives

1. To review the literature and gather requirements used to design admission management system.
2. To design an admission management system.
3. To implement the design for an admission management system.
4. To taste and validate the functionalities of an admission management system.

1.4 Scope of the study

Schools are opting for better management of their students learning through the use of computerized systems

Admission management system research shall be conducted in Kworus secondary school which is located in kapkwata parish. Kapkwata sub-county, Kween district. The school is approximately one and half km north of Kapchorwa Suam road. Kworus secondary school aims to explore the heights of the educational sector through providing quality learning facilities to students and stake holders.

The study was limited to the development of an admission management system for kworus secondary school, designed to help students to get their schools admissions problems solved on a fingertip.

The main functionalities of the system include the following;

- Application management. The system allows parents, and students to submit online applications for admissions.

- Generating parents' visitation ID. The system generates an ID for parents to use while visiting the school.

- Tracking of the student's performance. The system alerts parents on their children performance.

- Financial assistances. The system captures the fees details of the school such that the parents who got admissions for their children will get those details in the system.

- Captures school events. The system is be able to capture the events

The project started in DEC, 2023 and will end in April, 2024, which time will be used to study the system in place, get user requirements and so design and develop an admission management system for Kworus secondary schools.

1.5 Significances of the study.

This study focuses on the development and implementation of admission management system tailored to the specific needs of a school environment. The significance lies in its potential to streamline and improves the overall efficiency of the admission processes, enables secure management and safe storage applicant data and Simultaneous access to multiple users like administrators, students, askaris, and other staff members.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

A literature review is a piece of academic writing demonstrating knowledge and understanding of the academic literature on a specific topic placed in context(Walter and Stouck 2020). A literature review also includes a critical evaluation of the material; this is why it is called a literature review rather than a literature report. It is a process of reviewing the literature, as well as a form of writing.

This chapter is subdivided into different subsections for example information systems, types of information systems, roles, applications, Management systems, and chat bot.

2.1 information systems.

2.1.1 definition of information systems.

Information systems refers to an integrated set of components for collecting, storing, and processing data for providing information, knowledge, and digital products(Watson 2007). Business firms and other organizations rely on information systems to carry out and manage their operations, interact with their customers and suppliers, and compete in the market place. Information systems are used to run inter-organizational supply chains and electronic markets, for instance, corporations use information systems to process financial accounts, to manage their human resources, and to reach their potential customers with online promotions.

2.1.2 Types of information systems.

2.1.2.1 Transaction Processing System (TPS)

Transaction processing is essential to helping businesses perform daily operations. Transactions are defined as any activity or event that affects the company, and include things like deposits, withdrawals, shipping, billing customers, order entry, and placing orders(Scheller and Hruby 2016). TPS supports these business transactions.

2.1.2.2. Office Automation System (OAS)

OAS consists of computers, communication-related technology, and the personnel assigned to perform the official tasks. The OAS covers office transactions and supports official activity at every level in the organization. The official activities are subdivided into managerial and clerical activities.

Office automation systems include the following applications:

Email: The email application also covers file attachments such as audio, video, and documents.

Voice Mail: This application records and stores phone messages into the system's memory and can be retrieved anytime.

Word Processing: Word processing covers the creation of documents, including memos, reports, letters, and anything else that's printable electronically. The created text can be copied, edited, and stored via word processing commands, and checked for grammar and spelling, line and word counting, and headers and footers.

2.1.2.3. Knowledge Work System (KWS)

The KWS is a specialized system that expedites knowledge creation and ensures that the business's technical skills and knowledge are correctly applied. The Knowledge Work System aids workers in creating and disseminating new information using graphics, communication, and document management tools. Here are some examples of KWS:

Computer-Aided Design Systems (CAD): CAD systems automate design creation and revision via computers and graphics software, especially in the manufacturing and tooling processes (Scheller and Hruby 2016).

Financial Workstations: These systems pull and combine data from many different internal and external sources, covering research reports, market data, and management data. Financial workstations can rapidly analyze huge amounts of financial data and trading situations.

Virtual Reality Systems: These systems take the CAD system to the next level, using interactive graphics utilities to create realistic computer-generated simulations. VR systems are typically found in scientific, educational, and business circles.

2.1.2.4. Management Information System (MIS)

Middle managers handle much of the administrative chores for day-to-day routines and performance monitoring, ensuring that all the work is aligned with the organization's needs. That's why MIS is such a valuable tool. Management Information Systems are specially designed to help middle managers and supervisors make decisions, plan, and control the workflow. The MIS pulls transactional data from various Transactional Processing Systems, compiles the information, and presents it in reports and displays.

Additionally, these reports can be produced monthly, quarterly, or annually, although MIS can have more immediate reports (e.g., hourly, daily).

2.1.2.5. Decision Support System (DSS)

(Avery, Castleman et al. 2021). The Decision Support System specifically gives middle managers the information necessary to make informed, intelligent decisions.

Decision Support Systems use different decision models to analyze or summarize large pieces of data into an easy-to-use form that makes it easier for managers to compare and analyze information. Often, these summaries come in the form of charts and tables.

2.1.2.6. Executive Support System (ESS)

The ESS is like the MIS but for executive-level decision-making. The decisions involve company-wide matters, so the stakes are higher. Consequently, they demand more insight and judgment(Avery, Castleman et al. 2021).

The ESS provides greater telecommunication, better computing capabilities, and more efficient display options than the DSS. Executives use ESS to make effective decisions through summarized internal data taken from DSS and MIS and external sources. In addition, executive support systems help monitor performances, track competitors, spot opportunities, and forecast future trends.

The Main Applications of Information Technology.

Although the system application descriptions hint at how they are best applied, some of the chief information technology applications include the following.

Information/Data Storage

Although companies need good information to create better goods and services, they must also have a reliable, cost-effective system to store the information that allows rapid data access when required. In addition, a sound information system helps businesses keep logs of essential activities and store valuable assets such as communication records, revision histories, activity logs, operational data, and other relevant documents.

By storing information in an organized manner, businesses understand why problems and roadblocks occur and how to solve them(Luckham 2011).

Rolling Out New Products and Services

Although there is an ever-increasing demand for new goods and services, any business that wants to stay competitive needs information to make better decisions and consequently offer better products. Information systems help analyze independent processes and organize the company's work activities. So, an information system allows a business to better understand how it can design, create, and sell services or products that people want.

Simplified Decision Making

It's challenging enough to make decisions, let alone consistently making the exact, right decisions. There are no guarantees that an organization's decisions will work. However, information systems help take some of the pain out of the process by offering information rapidly and easily.

Improving Employee Behaviors and Attitudes.

Information systems can be effectively employed to improve communication between employers and employees. An efficient information system empowers employees by making relevant information more accessible, helping them become a part of the decision-making process. This empowerment boosts motivation and increases commitment to the project or assignment.

2.2 management system

A management system is a set of policies, processes and procedures used by an organization to ensure that it can fulfill the tasks required to achieve its objectives(Avery, Castleman et al. 2021).[1] These objectives cover many aspects of the organization's operations (including financial success, safe operation, product quality, client relationships, legislative and regulatory conformance and worker management). For instance, an environmental management system enables organizations to improve their environmental performance, and an occupational safety and health management system enables an organization to control its occupational health and safety risks.

The international standard ISO 9000:2015 (Title: Quality management systems - fundamentals and vocabulary) defines the term in chapter 3.5.3 as a "set of interrelated or interacting elements of an organization to establish policies and objectives, and processes to achieve those objectives". [2]

2.3 current admission management system in schools.

(Alotaibi, Ayesh and Hall 2015) School Admission Management System is software that helps administrators and teachers manage the school admission process. It is designed to streamline the admission process and collect all necessary information promptly and efficiently. Administrators can use this system to create admission forms, track and manage the applications they have received as well as store information about students. It also helps teachers review and approve applications and manage student admission decisions. Furthermore, the system can generate reports, track changes, and generate statistics.

The school admission management system works seamlessly, as the software is user-friendly as well as customizable according to the institution. School admins can customize the forms and fields to gather the necessary information for each student. The system enables admins to examine and give consent to applications, formulate admission rules and conditions, and scrutinize the process. The system helps teachers track each learner's progress and make amends as needed. (Alotaibi, Ayesh and Hall 2015)

2.3.1 Importance of School Admission Management System

A school is an essential institution that lays the groundwork for developing a child's aptitudes and knowledge. Thus, schools need efficient management systems to maintain seamless operations. Managing enrollment and optimizing the student admission process are both possible with a student admission management system. The system aids the institution in keeping track of each learner's admission progress. Schools need admission management systems because:

The School Admission Management System automates the entire admission process. It assists with online registrations, handling the applications received, and monitoring the entire process. The system also creates reports about the registration process to monitor the school's performance. (Fujo 2019)

This automated system helps the institution monitor and evaluate the student's attendance, academic performance, and other relevant data. Additionally, it points out areas for improvement and assists with putting the changes into practice.

The system enhances communication between the school and the student in the long run. Regularly informing parents about the admission process, sending timely reminders about important dates, and so on keeps the parents in the loop.

Schools can even manage their finances with the help of the School Admission Management System. It can track the students' payments while monitoring the school's budget. The system may also produce reports on the school's financial performance and offer budgetary advice.

It is a vital tool that can efficiently improve the school's operation. It can benefit the staff by reducing their workload since it automates the entire paperwork and manual work carried out for the admission process.

The technology also aids in ensuring the security and safety of pupils by making it easier for schools to keep track of each student's attendance and behavior. It contributes to making the school environment secure for everyone.

Since the School Admission Management System allows institutions to control their resources and deliver better quality education efficiently, it becomes a necessary instrument that helps schools to stay on top in the competitive academic industry(Avery, Castleman et al. 2021).

CHAPTER THREE

METHODOLOGY

3.1 Introduction.

This chapter describes the methods that were used to achieve the objectives of the study. This describes how data was collected using literature review, interviews, observation, focus groups and how collected data was analyzed to aid the system development.

The method chosen for data collection of this research was qualitative method, which is often the best and most efficient approach of collecting complete information from the small population and horse mouth of the administrator. Qualitative methods are for conducting researches that rely on open ended exploration of people's action, words, thoughts and intentions(Avery, Castleman et al. 2021). Qualitative methods include observation, focus groups and interview.

3.2 Area of study.

Admission management system research was conducted in Kworus secondary school which is located in kapkwata parish. Kapkwata sub-county, Kween district. The school is approximately one and half km north of Kapchorwa Suam road. Kworus secondary school aims to explore the heights of the educational sector through providing quality learning facilities to students and stake holders.

3.3 Population and sampling method.

Population refers to the entire group of people, events or subjects of interests that the researcher wishes to investigate whereas sampling refers to the process of selecting a sufficient number of elements (sample) from the population(Avery, Castleman et al. 2021). The purpose of the study determines the number of participants to involve in the study. The participants can be segregated by many factors such as employment title, age, gender and other dimension that would benefit the study. In this research, fifty participants were involved in the study. The Head teacher, one (01) shall be involved and the other participants shall come from two focus groups that are the employee(s) and students(s). A total sample size of thirty (30) male and twenty (20) female participants shall be involved in the study as shown in the table 3.3.1 below, between the age group of (20-50years). The method of sampling is purposive; to select key informants, (people with deep knowledge under investigation) for example the Head teacher, head of departments. Simple random sampling will be adopted to select other participants in the focus groups at kworus secondary school.

sample size of participants

Focus groups	Head teacher	Employee (s)	student (s)	Total
Number of participants	01	15	34	50
Male	01	09	20	30
Female	–	06	14	20
Day	Day 1	Day 2	Day 3	

Table 3.1: Sample size of participants

This explains the different methods that were used by the researcher.

3.4 Data collection technique

Observation.

This technique was used to gather accurate information about how the system actually operates particularly about processes (Avery, Castleman et al. 2021). This technique enables the researcher to systematically observe and record the behavior and characteristics of operations and processes in the school. The method gives more detailed and context related information, permits the collection of information, allows tests of the reliability of the responses to the view operations of a system as they are actually occurring, and can adapt to events as they occur. It is important in that; Observer can see exactly what is being done, it allows the validity of facts and data to be checked, it is relatively inexpensive and the observer can obtain data describing the physical environment of the task. The observation technique becomes impractical in that people may knowingly or unknowingly perform differently when being observed, also some tasks may not always be performed in the manner in which they are observed.

3.4.2 Document review.

This tool was used to understand what has been written on the subject matter of capacity developing of Admission management system. A thorough review of the documents was used in the school with the intent to study how things are done and discover areas where improvement is necessary. It enables the researcher to investigate gaps, problems and benefits of the existing system. A number of documents shall be reviewed including student registers, periodic reports and among others. This method was used

because; It is inexpensive due to the availability of data, it permits examination of trends over the past, does not interrupt program or client's routine in program, and there are few biases about information. From the above available data technique, the researcher used document reviews to understand what has been written on the subject matter of capacity development of Admission management system.

3.4.3 Focus group discussion

A focus group is one type of group interviews where the interviewed individuals have been put together in groups by the researchers. Furthermore, Focus Groups are not be conducted as several one-to-one interviews simultaneously, instead focus groups is about creating a situation of open discussion concerning this area under investigation where all participants feel comforted in expressing their opinions and responding to the other opinions around them. Before execution of focus group discussion, open ended questions are set by the researcher to provide him with the opportunity of creating a discussion environment among the members of a focus group (Freitas, 1999). However, Easterby-smith, et al, (2018) discussed that one of the biggest challenges of focus groups is that it requires resources to gather the participants. Also, the participants may not give the right information as required by the researcher under the area of study.

3.5 Analysis and representation

According to Saunders, et al, (2019) elucidated the process of analyzing the collected data as a translation of the gathered data by different methodologies through research and refer gathered data to the literature review to construct the proper results for the research and fulfill the purpose. In this research, the information gathered from interviewees shall be analyzed by consensus and presented descriptively in verbatim.

The qualitative data collected by interview, observation, document review and focus groups was analyzed according to the qualitative analysis method. Qualitative analysis is the use of non-quantifiable methods to evaluate investment or business opportunities and make decisions. In qualitative analysis, the data collected is structured in a proper sequence, basing on the method of collection. Chalhoub-Deville and Deville (2008), argued that qualitative approaches are employed to achieve deeper insights into issues related to designing, administering and interpreting language assessment. Categorization for the common data was approached to demonstrate the data in a suitable way for interpretation. Along with the coding process proceeded and the data based on determined themes that will clarify the valuable findings of the operated discussions was described.

3.6 System design methods.

This describes how the functions of an Admission management information system was realized.

3.6.1 structured analysis.

I used structured analysis design method. It involves breaking down a complex system into smaller components and analyzing their functions interactions, and data flows.

3.6.1.1 Rapid Application Development method (RAD).

I used RAD method that focuses on developing the system rapidly through frequent iteration and continuous feedback and I came out with the prototype of the system. And this addresses objective (iv) which is testing.

3.7 System implementation.

An Admission management system is a web-based system, whereby the backend software is installed in the web server and user computer or mobile phone. To enable the whole system to fully operate, text editor, JavaScript, HTML, PHP, Wamp server was used to implement the system.

Text editor was used because it has got development languages such as HTML (Hyper Text Markup Language) for creating dynamic and interactive Webpages, PHP for connecting the system interfaces to the databases, JavaScript for validating the system web pages and CSS files for modifying the appearance of the font and web pages. Also, Adobe photo shop CS3 was used to provide the environment for creating banners and customized images for the system. On the other hand, Wamp server has the MYSQL components enabled me to create the system databases and tables that provides the platform from which the system information is stored. The Wamp server used is a relational database management system (RDMS) whose primary Query language is MYSQL. MYSQL supports different data types including primary types such as integer, float, decimal, char (including character strings), varchar (variable length character strings), Binary (for unstructured blobs of data), text (for textual data) among others.

3.8 Testing and Validation.

All components of the system were tested to ensure proper functionality. They are to be integrated to form a fully functional system.

System testing involves testing software or hardware connected on a computer, integrated system to evaluate the system's compliance with its specified requirements. This testing should require no

knowledge of the inner design of the code or logic. System testing should be performed on the entire system in context of the functional requirements and system requirements. System testing was carried out to ensure that the client cannot submit empty fields especially those that are mandatory. This can be done by leaving some fields empty to see whether the system can send an alert message.

Validation shall be done to ensure that data fed into the system satisfied the pre- determined formats and complied with stated length and character requirements including other defined input criteria. For example, a field that requires a date should not allow letters. For accurate validation, sample data should be into the system to find out if the system is able to respond correctly to the test data fed into the application that is if it is correct or incorrect data. Different stakeholders shall be left to interact with the system to find out its validity

CHAPTER FOUR

FIELD STUDY AND SYSTEM DESIGN

4.1 Introduction

This chapter describes the study of the current system, strength of the current system, weaknesses of the current system, system requirements (functional and non-functional requirements), system design (system architecture, context diagram, Data flow diagram, ERD, User Case Diagram).

4.2 Background information/ current system study.

The current information system of Kworus secondary school is a traditional file-based system managed by the Head teacher as the top administrator followed by the deputy head teacher and other administrators from different departments and Director of studies who is the in-charge of school academics related issues. During a new academic year, the school receives a large number of parents and their children seeking for admissions for their children, on reaching the school they are directed by the receptionist in the gate to the Head teacher's office whereby the Head teacher will go through the child's previous results and when he/she qualifies then the parent pays admission fee. The Head teacher records the child in the admission book then gives admission form to the parent containing school requirements. Parents and students also play a role of managing the manual files of admission information for future reference. The system has been in existence since the school started in 2003. Kworus secondary school is licensed Ministry of Education and Sports (MOES) to render its services such as academics and curricular activities. The school is a multi-compartmentalized structure, but all the students' records are kept in their respective individual files from each department with limited automation in the system.

4.3 Strength of the current system.

The current admission management system at Kworus secondary school gives parents and teachers chance to interact with administrators and teachers physically thus explaining their problems in detail.

Admission management system at kworus secondary school does not require specific skills and knowledge in the field of ICT to handle student records.

The current system was not prone to malware such as viruses, worms meaning the data stored was not prone to malware and other cyber threats.

The current system at kworus secondary school is cheap and efficient because it does not require expensive gadgets like computers and expertise.

4.4 Weaknesses of the current system.

Difficulty in easily retrieving a record of interest at a later time.

Large physical storage area (rooms) is required for storing Admission records.

Book-based records tend to fade with time hence information lose.

High risk of losing information in case of a disaster such as fire outbreak, flooding earthquakes among others.

The process of recording manually consumes a lot of time thus making the system slow.

The users of the system cannot access the system from a distance without physically coming to the facility.

The system is prone to errors due to the fact that it is manual throughout. The head teacher have to manually capture data from parents and students and all humans are prone to making mistakes.

Some students lose their admission records/ files which makes it hard for the head teacher to trace these records.

To make admissions, more attendants are required all the time to guide students and parents as well as other stakeholders, but no need for these attendants if incase the system is online.

The current system is very expensive because parents need to move physically to get admission for his/her child.

4.5 system requirements.

4.5.1 functional requirements.

The functional requirements describe the functionalities or services that the system is going to render to its end users(Avery, Castleman et al. 2021) and it includes the following;

Application management. The system should allow parents, and students to submit online applications for admissions.

Generating parents' visitation ID. The system should generate an ID for parents to use while visiting the school.

Tracking of the student's performance. The system should alert parents on their children performance.

Financial assistances/information. The system captures the fees details of the school such that the parents who got admissions for their children will get those details in the system.

Captures school events. The system should be able to capture the events of the school.

4.5.2 Non-Functional requirements.

These are those requirements that enhance usability of the system by adding value, they are not necessary in the systems functionality towards satisfying the objectives, and these include; the system graphical user interface based, largely dropdown menu driven for easy and convenient use. It is also easy to learn and interpret. User interfaces were designed basing on the forms currently in use so that the users of the system can easily adapt to the new system.

4.5.3 Hardware requirements.

The hardware requirements for the system to run smoothly are:

A personal computer that hosts the database. the minimum specifications of the computer are; processing speed of 1.8 GHZ, hard disk size of at least 50-100GB and RAM size of at least 512MBS

A graphical card and monitor cable of supporting a resolution of at least 800*600 pixels.

4.6 System design.

System design is the process of defining the architecture, interfaces, and modules for the system to realize functionality of the requirements. This was through the use of system design tools such as system architecture, context diagram, DFD, ERD and User Case modeling diagram to help to know how different processes interact with each other and their relationships.

4.6.1 System architecture.

The admission management system is a web-based architectural system that gives an outlay of how users interact with the system database through the internet. Every user of the system will have a unique username and password. The user in any given department will first see the welcome screen and then continue with the process by logging into the system by providing the valid login credentials, typically correct username and password. A new user has to first be added/registered by the administrator in order to obtain the access to the system.

The head teacher of Kworus secondary school reserves the exclusive authorization to the system by new users and administrators and monitors all the activities in the system. The askaris or gateman receives the

parents and students, captures their details and then directs them to the head teachers' office. The head teacher enters the parent's details and child's results in the admission registration form in the system and when the child's results qualify, he then approves the admission of the child and the parent will be automatically added into the system. The system then generates the parents' visitation card which will be used for visiting the child while at school

The head teacher which is the administrator will add other administrators to the system for example the askaris. The askaris verify the parents' visitation card and if it doesn't match, he will not allow him to enter to the school.

4.6.2 Context diagram.

A context diagram is a high-level visual representation that depicts the boundaries and interaction between the system and its external entities. It provides the overview of the system and its external environment, showing how the system interacts with users.

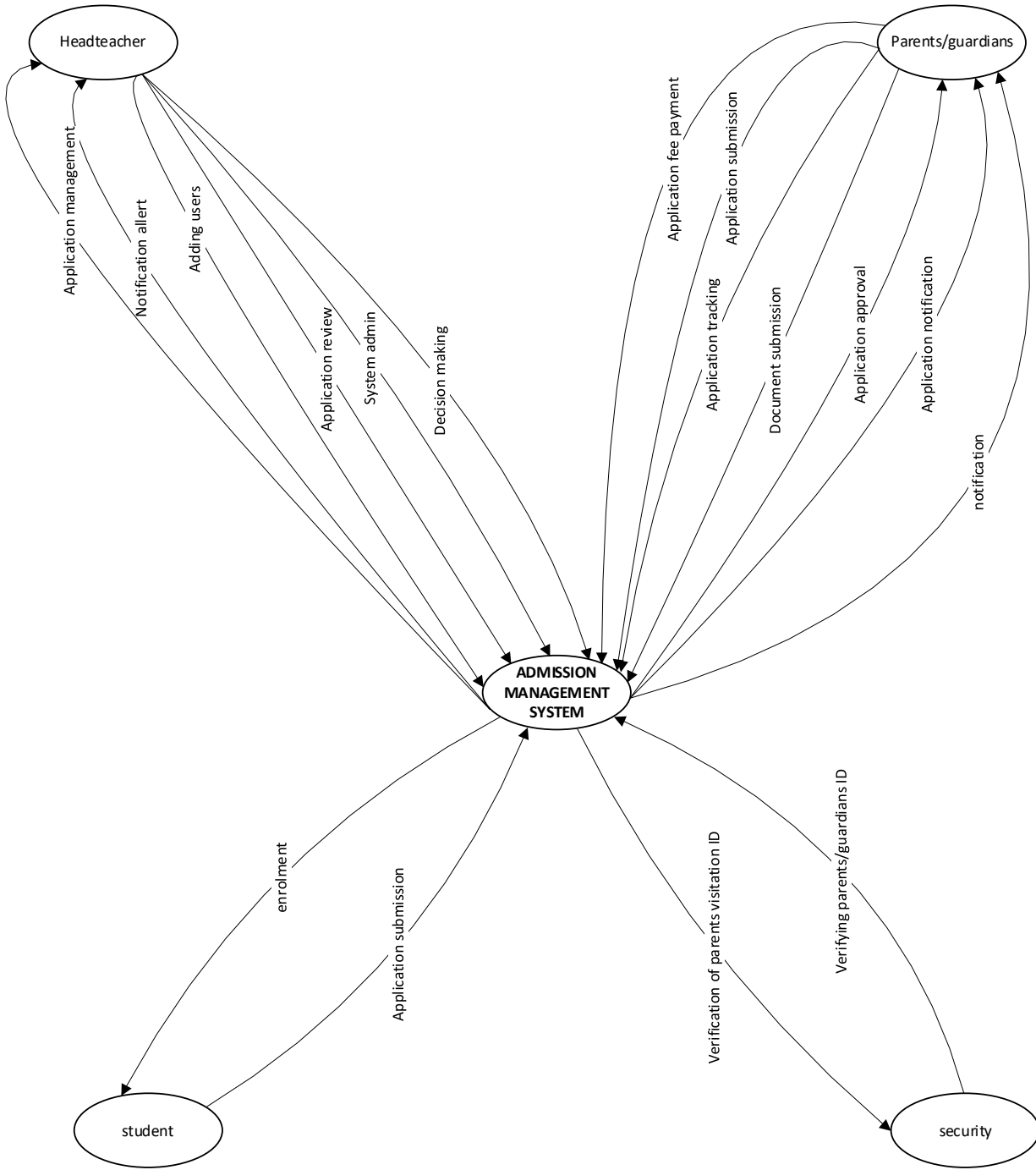


Figure 4.1: Context diagram

4.6.3 data flow diagram.

Data flow diagram is a visual representation of the flow of data within a system. It describes the processes, data store, data flows and external entities involved in the system.

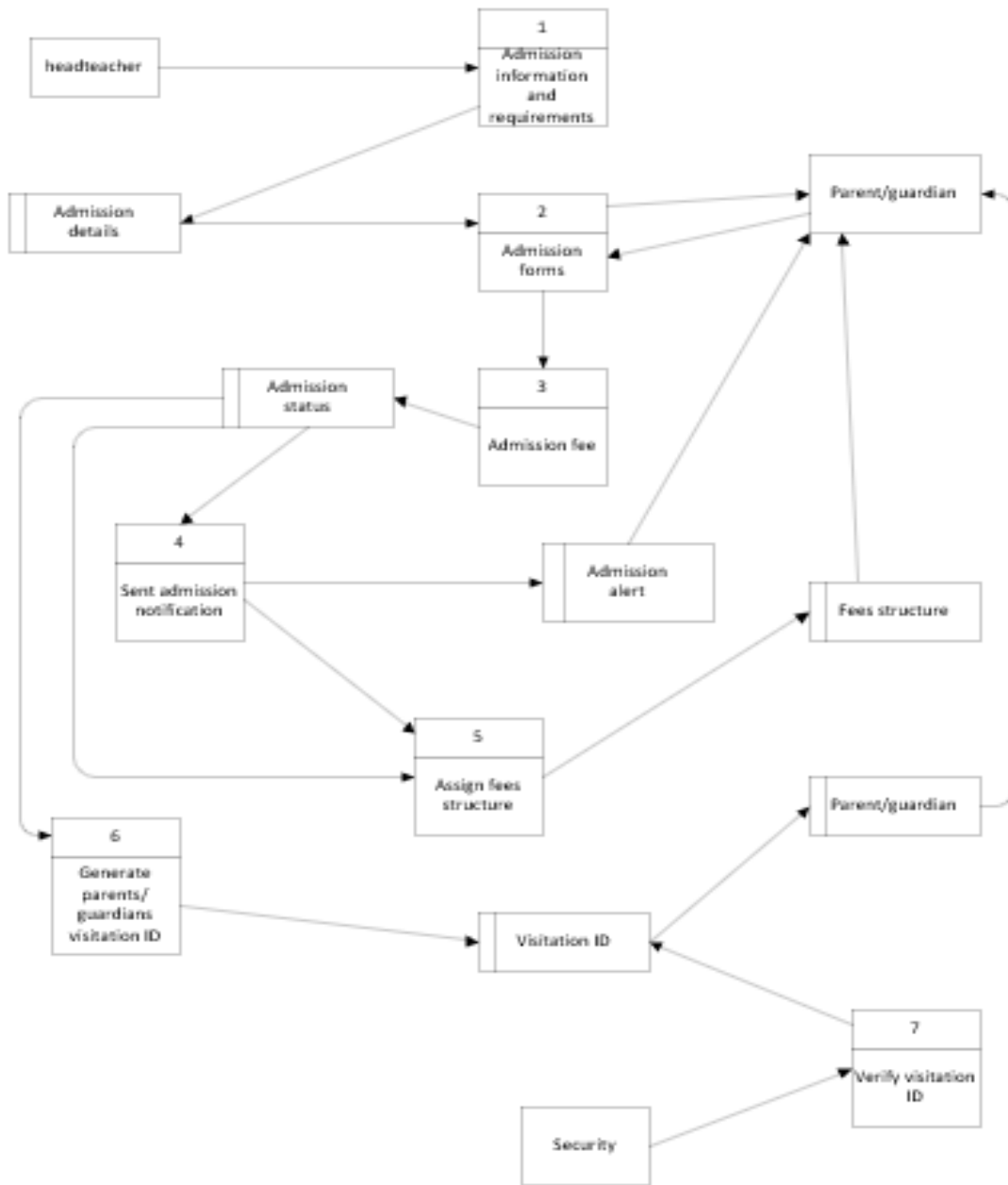


Figure 4.2: Data flow Diagram

4.6.4 use case diagram

The User case diagram represents the activities of the users with special functionalities of the system. Use case diagram model is what the system is expected to do and to view externally the use of the system from the user's perspective rather than internally.

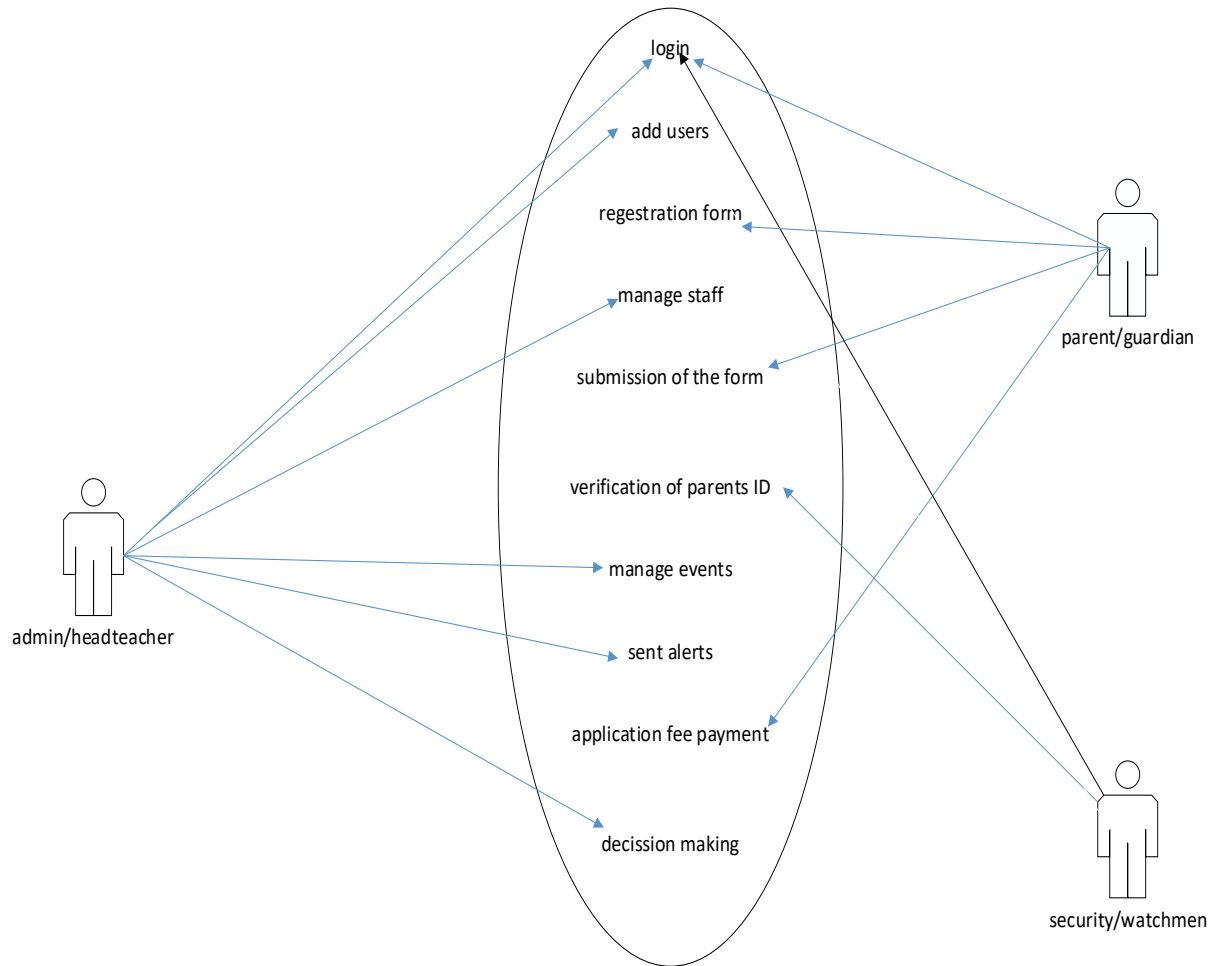


Figure 4.3: Use case diagram

4.6.5 Entity relationship diagram.

The Entity Relationships Diagram is a graphical representation of the relationship between the entities and attributes within a proposed database of the system. The entities about the data includes headteacher, Parents/guardians, and security/watchmen

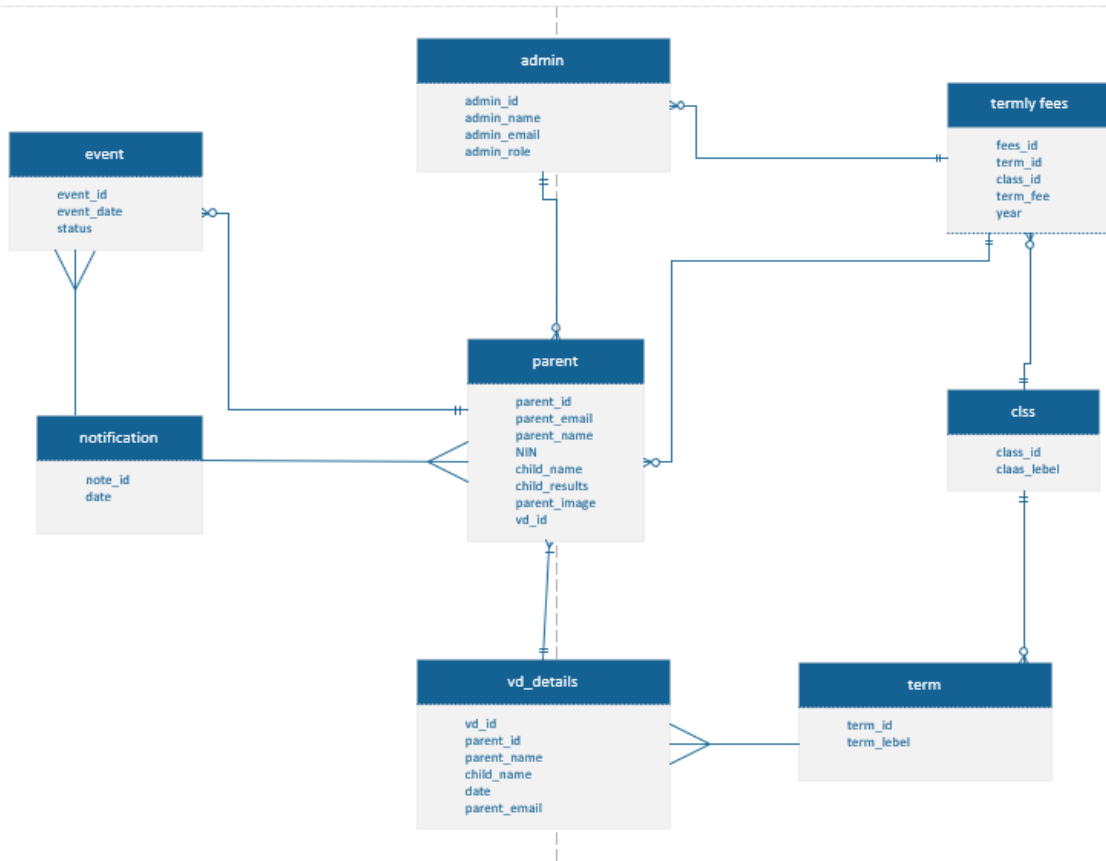


Figure 4.4: Entity relationship diagram

4.6.6 Use case table.

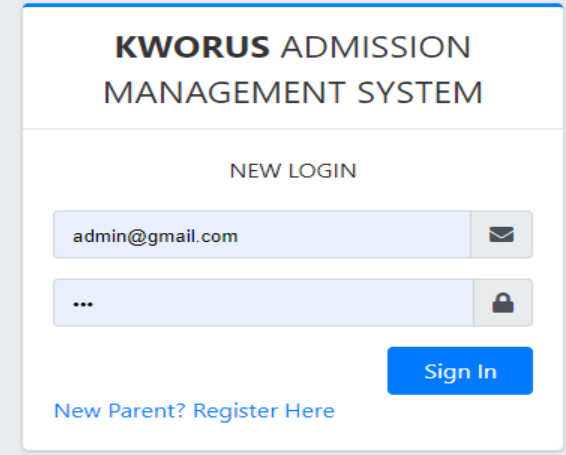
User activity	System activity	Login page
<p>Admin logs onto the system</p> <p>Parent/guardian logs onto the system</p> <p>Security/watchmen logs onto the system</p>	<p>Authentication</p>	

Table 4.1: Login use case table

4.6.7 Registration table

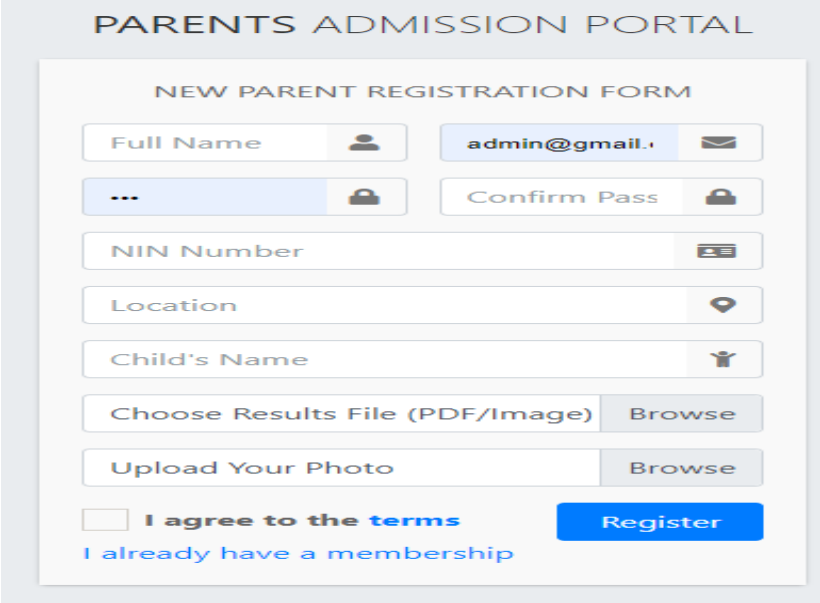
User activity	System activity	Registration form
Parent/guardian fills in the details	Captures the details	

Table 4.2: Registration use case table

CHAPTER FIVE

IMPLEMENTATION AND TESTING

5.1 Introduction.

This chapter presents the implementation output on how the system flows as the way the use case table is presented in chapter four.

5.2 Security.

The system provides the login and registration page to the users such that no unauthorized user can access the system. it's only the head teacher which is the admin who can add new users, this ensures that only fully qualified parents are added into the system.

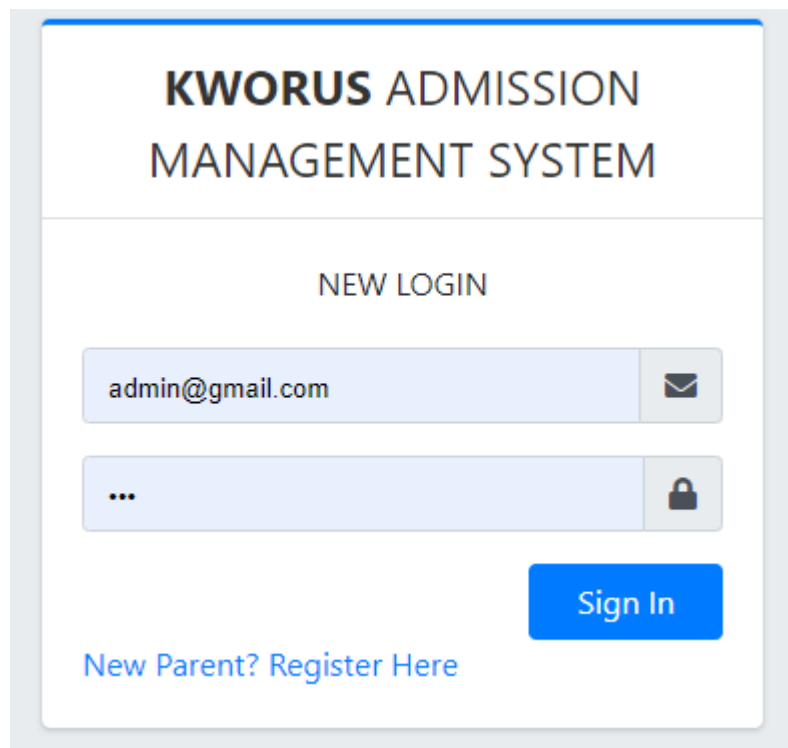


Figure 5.1: Login page

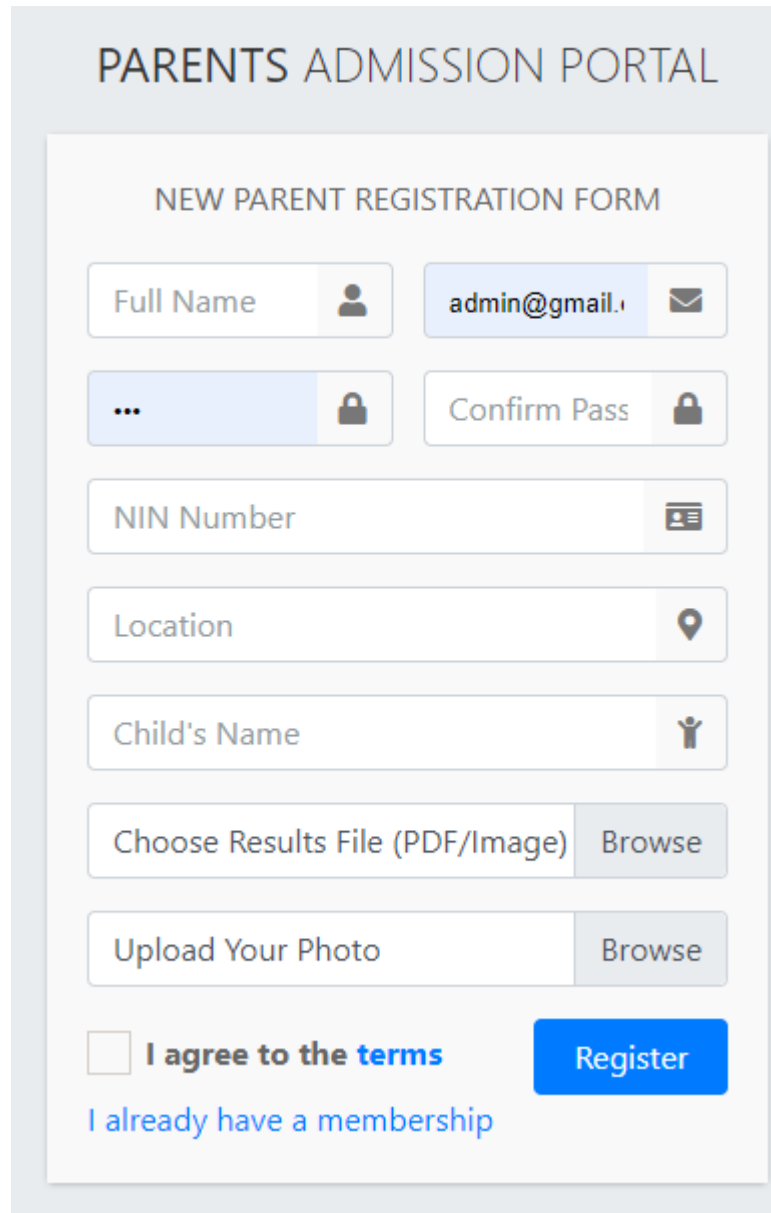
How it works

System administrator can log into the system and add new users like security and parents and manage all the system operations

Security/watchmen can log into the system and their work is to verify parent's visitation ID.

Parents who have been added by the system admin can also log into the system and view the fees' structure, view school events and many others

5.3 Parents registration form.



The image shows a web form titled "PARENTS ADMISSION PORTAL" with a sub-heading "NEW PARENT REGISTRATION FORM". The form contains several input fields and buttons:

- Full Name:** A text input field with a person icon on the right.
- Email:** A text input field containing "admin@gmail." with an envelope icon on the right.
- Password:** A text input field with a lock icon on the right.
- Confirm Pass:** A text input field with a lock icon on the right.
- NIN Number:** A text input field with a document icon on the right.
- Location:** A text input field with a location pin icon on the right.
- Child's Name:** A text input field with a person icon on the right.
- Choose Results File (PDF/Image):** A text input field with a "Browse" button to its right.
- Upload Your Photo:** A text input field with a "Browse" button to its right.
- Terms and Conditions:** A checkbox followed by the text "I agree to the terms".
- Register:** A blue button with the text "Register".
- Link:** A blue link that says "I already have a membership".

Figure 5.2: Registration form

How it works.

The parents are able to access the registration form from any location. The parent registers into the system using his/her full names, email address, password, NIN, location, child's name, child's results, his/her photo then lastly clicks on agree to terms and conditions and clicks on register button. The system now checks whether the details filled by a parent can make him qualify to get admission or not.

5.4 Admission page.

The screenshot displays the Admission Portal Dashboard for user **alfred@gmail.com**. The dashboard includes a sidebar with navigation options and a main content area with summary cards and data tables.

Summary Cards:

- Number of Parents:** 8
- Upcoming Events:** 3
- Pending Parents:** 1
- Most Paid Fee:** 800000.00

Shool over View

Visitation parents

Parent Image	Parent Email	Child's Name	Date
	joshua@gmail.com	MARK SABILA	2024-04-07 22:05:30
	joshua@gmail.com	MARK SABILA	2024-04-08 00:21:25
	mark@gmail.com	ODOI SAMUEL	2024-04-08 00:26:07
	bony@gmail.com	BOGERE TOM	2024-04-08 10:35:13
	ivan@gmail.com	BALABA ERICK	2024-04-09 09:27:05

Termly Fee

Term Name	Class Name	Term Fee	Year
Term One	S1	300000.00	2024
Term One	S2	300000.00	2024
Term One	S3	350000.00	2024
Term One	S4	400000.00	2024
Term One	S5	650000.00	2024
Term One	S6	800000.00	2024

Figure 5.3: Admission form

How it works.

When the administrator logs into the system the home page or the dashboard appears as shown above and the admin is able to perform various tasks on the system such as;

Termly assessment. The admin is able to add term in the system, assign fees payment for every term, assign the closure date and many other.

Manage staff. The admin also is able to add staff into the system through entering their full names, email address, password, and the role played. The system is able to capture all these details and saves in the system database.

View staff. After adding staff into the system, he/she is able also to view those staffs.

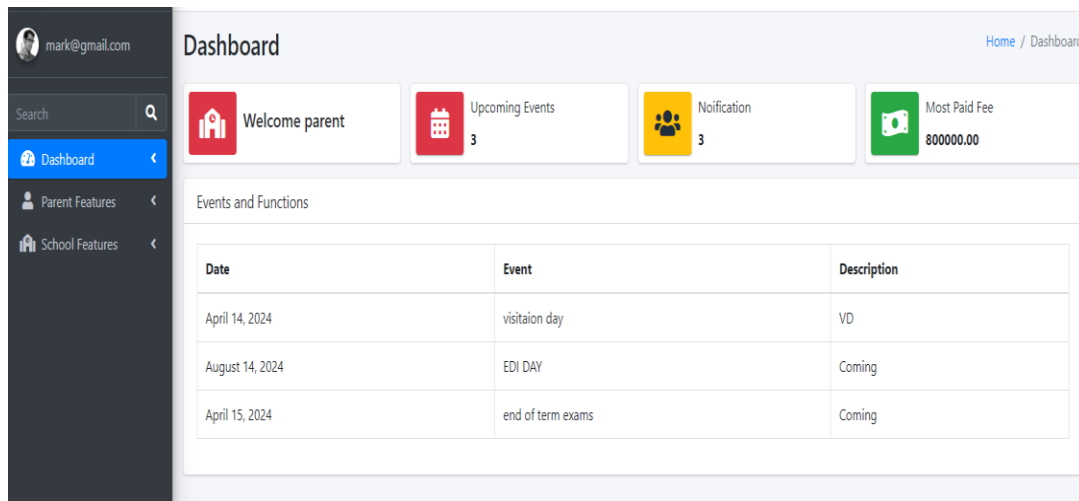
Manage events. The system also allows admin to manage the events of the school. For example, adding event where by the admin will enter the event name, event date, and the event status. And press the submit button. After pressing the submit button the event will be added automatically and parents who are already in the system are able to view such event.

View all admissions. The system allows the admin to view all the admissions and parent's details.

Results. The system also allows the admin to send alerts to all parents who are already using the system about the release of their child's results.

Views visitation details. Admins are able also to view parents who have visited the school.

5.5 Parents page.



Date	Event	Description
April 14, 2024	visitaion day	VD
August 14, 2024	EDI DAY	Coming
April 15, 2024	end of term exams	Coming

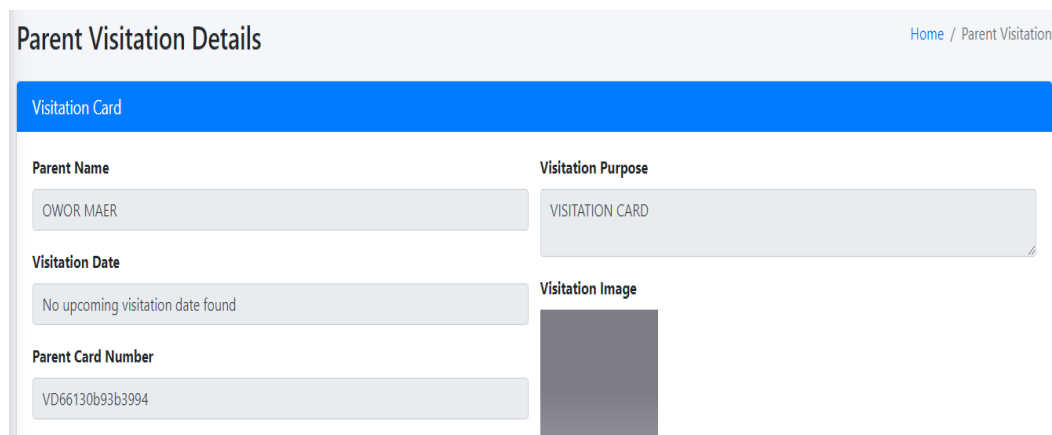
Figure 5.4: Parents dashboard

How it works.

The parent logs into the system and the dashboard appears as shown above.

5.5.1. Parents features.

After the dashboard appearing, the parent is able to view his site. The system allows him to click on the parent features and view what's there. In addition, the system is able to generate the visitation card for the parent which will be used when visiting the child as shown in the screen shot bellow.



The screenshot displays a web interface titled "Parent Visitation Details" with a breadcrumb trail "Home / Parent Visitation". A blue header bar contains the text "Visitation Card". Below this, the page is organized into two columns. The left column contains three input fields: "Parent Name" with the value "OWOR MAER", "Visitation Date" with the text "No upcoming visitation date found", and "Parent Card Number" with the value "VD66130b93b3994". The right column contains two input fields: "Visitation Purpose" with the value "VISITATION CARD" and "Visitation Image" which is currently empty.

Figure 5.5: Visitation details

5.5.2 school features.

The system also allows parents to view the school features for example school calendar, financial information, and school policies.

School calendar. After the system allowing the parent to login the parent is able to view his site. To access the calendar, the parent will click on the school features on the dashboard and selects calendar in the drop-down menu, then the system will automatically appear as shown below.

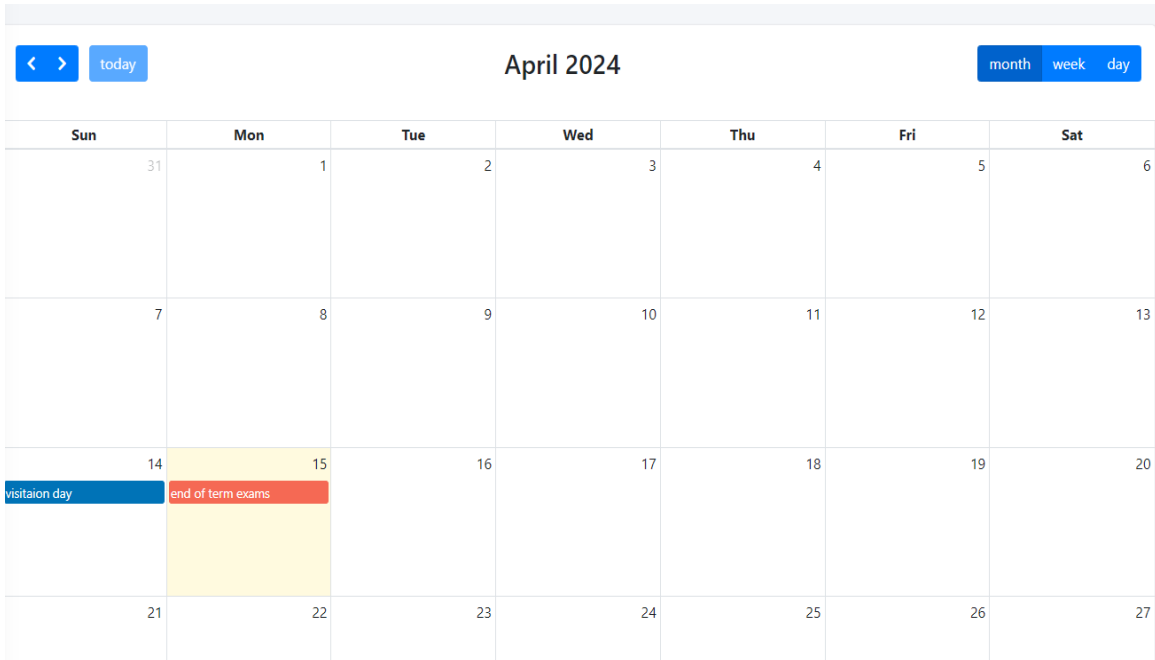


Figure 5.6: school calendar

School policies.

After logging in as a parent a dashboard will appear in the home page of the system and for the parent to access the school policies, he/she will click on the school feature function and selects school policies on the dropdown menu. And the system will show the parent the school policies automatically. As shown below.

[Home](#) / School Policies

School Policies for Parents

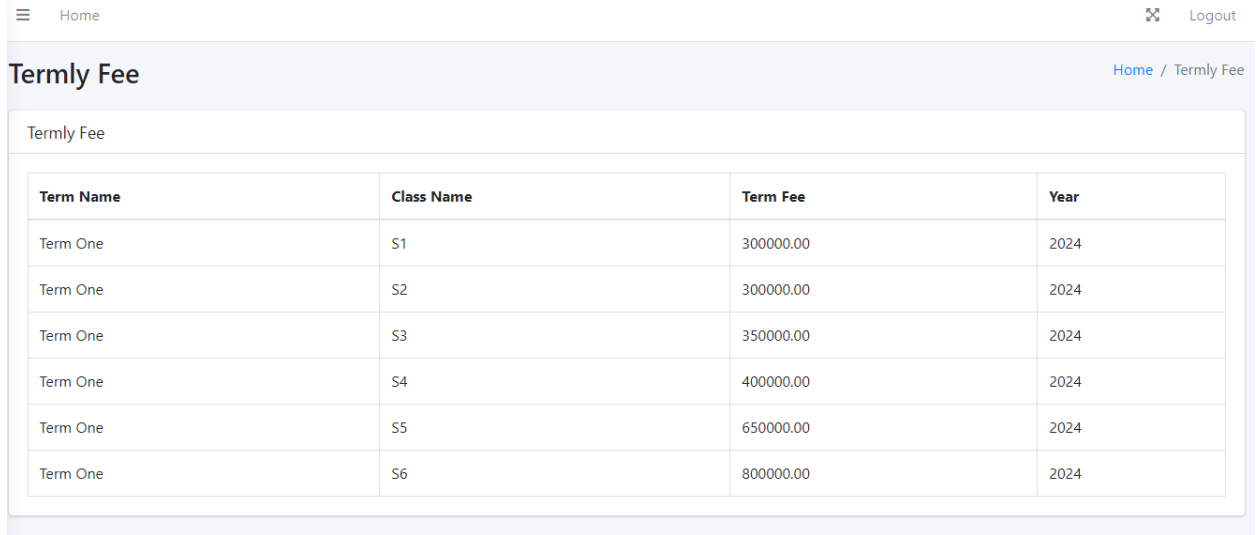
School Policies Overview

- 1. Attendance Policy:**
Our attendance policy emphasizes the importance of regular attendance for student success. It outlines procedures for reporting absences, tardiness, and requesting excused absences.
- 2. Discipline Policy:**
The discipline policy sets clear expectations for student behavior and consequences for violations. It promotes a positive and safe learning environment for all students.
- 3. Dress Code:**
Our dress code policy ensures a respectful and appropriate appearance for students. It outlines guidelines for attire and grooming expectations.

Figure 5.7: School policies

Financial features.

The same procedures also apply as shown in how to access school calendar and school policies, but to access the financial features you select the financial feature on the school features and a parent will be able to view the fees paid per term. As shown in the screen shot below.



The screenshot displays a web interface for 'Termly Fee'. At the top, there is a navigation bar with a menu icon and 'Home' on the left, and a 'Logout' button on the right. Below the navigation bar, the page title 'Termly Fee' is shown on the left, and a breadcrumb trail 'Home / Termly Fee' is on the right. The main content area features a table with the following data:

Term Name	Class Name	Term Fee	Year
Term One	S1	300000.00	2024
Term One	S2	300000.00	2024
Term One	S3	350000.00	2024
Term One	S4	400000.00	2024
Term One	S5	650000.00	2024
Term One	S6	800000.00	2024

Figure 5.8 termly fees

5.6 Security/watchmen site/page.

The screenshot shows the 'Admission Portal' dashboard for a user with the email 'rogers@gmail.com'. The dashboard is titled 'Dashboard' and includes a 'Home' link and a 'Logout' button. The main content area is divided into three sections:

- Shool over View**: A sub-section containing two tables.
 - Visitation parents**: A table with columns 'Parent Image', 'Parent Email', 'Child's Name', and 'Date'. It lists five entries for parents like joshua@gmail.com, mark@gmail.com, bony@gmail.com, and ivan@gmail.com, with their respective visitation dates and child names.
 - Termly Fee**: A table with columns 'Term Name', 'Class Name', 'Term Fee', and 'Year'. It lists six terms (Term One to Term Six) for classes S1 through S6, with fees ranging from 300,000.00 to 800,000.00 for the year 2024.
- Events and Functions**: A table with columns 'Date', 'Event', and 'Description'. It lists three events: 'visitation day' on April 14, 2024 (Description: VD), 'EDI DAY' on August 14, 2024 (Description: Coming), and 'end of term exams' on April 15, 2024 (Description: Coming).

Figure 5.9: security page

How it works.

The system allows the security/watchmen to log into the system, after him logging in the dashboard will appear on his screen as shown above. The watchmen will view the parents who have visited the school, events and functions, and termly fee's structure

Visitation card scan. The system will allow the watchmen to verify whether the parents' visitation card is valid or not by clicking on the visitation card scam on the dashboard and enters the parent's visitation ID and clicks on verify button. When the parent's visitation ID is valid then the system will show the parents details and when the parent's visitation ID is invalid the system will automatically reject the parent and the parent will not be allowed to enter the school. As shown below,

Home Logout

Visitation Form Home / Visitation Form

Add Staff

Verification Form

VD Number:

Verify

Figure 5.10: visitation card scan

CHAPTER SIX:

DISCUSSION OF RESULTS, CONCLUSION, RECOMMENDATIONS, AND FUTURE WORK.

6.1 Introduction.

This chapter presents discussion, conclusion, recommendations, and future work.

6.2 Discussion of results.

The discussion of results was guided by objectives of the study that includes;

- i. Review the literature determine the requirements.
- ii. Design the system.
- iii. Implement.
- iv. Test and validate.

The theme in objective (I) was to determine the requirements for the system. In the study, the data were collected and analyzed from which system requirements were determined and broken into functional and nonfunctional requirements. This is presented in chapter 4 section 4.5.1 and 4.5.2.

This is in line with the work (Schabram. 2015) who said that in developing information system, one must first determine the requirements of the system in other to come up with complete and working system.

The second theme was to design the system. In this study, system design follows these stages; system architecture section 4.6.1, context diagram section 4.6.2, Data Flow Diagram (DFD) section 4.6.3, use case diagram section 4.6.4 and Entity Relationship Diagram (ERD) section 4.6.5. (Husen et al. 2020) stated that to come up with a given system, one must design the system starting from system architecture, context diagram, DFD, use case tables and ERD as detailed in chapter 4

The third theme was to implement the system. In this study, the system implementation followed structured analysis and design approach where I used RAD approach as described in chapter 3. This included coding the system modules, integrating them and performing initial debugging as detailed in section 3.7. According to Sommerville (2016), System implementation involves translating the system design into executable program, integrating different modules and ensuring that the system operates as intended.

The fourth theme was to test and validate the stem, testing was conducted in two in two major phases: Unit testing and integration testing as detailed in section 3.8. Mayer's, Sadler and Badgett (2011) emphasize that thorough testing is crucial for identifying and fixing defects to ensure the system meets the specified requirements. Unit testing focused on individual modules integration testing ensured that the combined modules functioned correctly.

Validation user acceptance testing and performance evaluation as detailed in section 3.8. According to Pressman and Maxim (2014), validation ensures the system meets user needs and performs efficiently under real world conditions. UAT involved end-user testing the system to verify that it meets their requirements while performance evaluation measured the system's responsiveness and stability under various load conditions.

6.3 concussion.

From this discussion, the results show that this study has achieved all its objectives and the system is better than the existing system.

6.4 Recommendations.

Kworus secondary school should use the system to make their work easy.

This work would be used as a literature to further the study of the area.

6.5 limitations and future work.

Resources such as time were not enough to link this system to UNEB system to view previous result of the candidate to be admitted. I refer this to future researcher to continue from there.

As being a private sponsored researcher, I did not integrate the system to come up with CHAT-BOT which will help users to get real-time answers for their frequently asked questions because I lacked enough capital to purchase some software's. so, I refer this to future researcher to continue from there.

The system also does not have a functionality of self-enrollment which will help the school to know that you are still a student of such a school. I refer this to future researcher continue from there.

REFERENCES

Alotaibi, A. S., et al. (2015). Managing admission in Saudi universities: a system approach, International Conference on e-Education, e-Business, e-Management and E-Learning.

Avery, C., et al. (2021). "Digital messaging to improve college enrollment and success." Economics of Education Review **84**: 102170.

Carranza, E., et al. (2022). "Job search and hiring with limited information about workseekers' skills." American Economic Review **112**(11): 3547-3583.

Cui, Y., et al. (2023). "A survey on big data-enabled innovative online education systems during the COVID-19 pandemic." Journal of Innovation & Knowledge **8**(1): 100295.

Fujo, M. (2019). Centralized admission system for advanced level private schools: case of Kilimanjaro region, Tanzania, NM-AIST.

Kosgei, F. J. and J. M. A. J. Munyua (2022). "Education Management Information System and Tracking of Students' Records in Selected Public Secondary Schools in Turbo Sub-County, Kenya." Education **13**(17).

Luckham, D. C. (2011). Event processing for business: organizing the real-time enterprise, John Wiley & Sons.

Scheller, C. V. and P. Hruby (2016). "Business process and value delivery modeling using possession, ownership, and availability (POA) in enterprises and business networks." Journal of Information Systems **30**(2): 5-47.

Walter, L. and J. Stouck (2020). "Writing the literature review: Graduate student experiences." The Canadian Journal for the Scholarship of Teaching and Learning **11**(1).

Watson, R. T. (2007). Information systems, The Global Text Project.

O. Nyumba, T., *et al.* (2018). "The use of focus group discussion methodology: Insights from two decades of application in conservation." Methods in Ecology and evolution **9**(1): 20-32.

Okoli, C. and K. Schabram (2015). "A guide to conducting a systematic literature review of information systems research."

Papich, M. G. (2015). Saunders handbook of veterinary drugs: small and large animal, Elsevier Health Sciences.

Penn, I. A. and G. B. Pennix (2017). Records management handbook, Routledge.

Prakash, I., *et al.* (2018). Romancing with inventory management, Blue Diamond Publishing.

Rathnayake, W. (2021). Pharmacy Management System for The Central Pharmacy-Pokunuwita.

Siamidi, A., *et al.* (2017). "Pharmaceutical compounding: Recent advances, lessons learned and future perspectives." Glob Drugs Therap **2**(2): 1-3.

Toyo, D. O. (2017). "Application of information and communication technology (ICT) to the management of records in the head of services office, Asaba, Delta State." Research Journal of Mass Communication and Information Technology **3**(1): 1-9.

Wasson, C. S. (2015). System engineering analysis, design, and development: Concepts, principles, and practices, John Wiley & Sons.

Sommerville, I. (2016). Software Engineering 10th ed. Boston: Pearson

Pressman, R.S. and Maxim, B.R. (2014). Software Engineering : A Practitioner's Approach. 8th ed . New York: McGraw-hill Education

APENDICES

Student feedback questionnaire: admission management system.

Personal information(optional)

Name: kiplangat brian

Interview guiding questions.

- 1) Current admission: how is admission process currently done in your school?
.....
 - a) Going physically to school.
 - b) Online
 - c) Others(specify)
- 2) Experience with the current system: how are you satisfied with the current admission management system?
.....
 - a) Very satisfied
 - b) Neutral
 - c) Very dissatisfied
- 3) Accuracy: do you believe the manual admission management system accurately reflects your application and admission process?
.....
 - a) No
 - b) Yes
- 4) Time efficiency: do you find the current system efficient?
 - a) No
 - b) Yes
- 5) Issues encountered: have you encountered any issue or challenge with the current manual admission system?
.....
 - a) No
 - b) Yes
- 6) Preference for change: would you prefer switching to admission management system over the current manual system?

.....

- a) No
 - b) Ye
 - c) No preference
- *END*